



CernVM Users Workshop

Welcome and Introduction

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5 March 2015

Outline

- Background
- Goals of the event
- Practical information

Background

- CernVM started as PH-SFT R&D project in 2008
 - Portable Analysis Environ. using Virtualization technology
 - Lead by Predrag Buncic
- Conceptual solution for HEP
 - Thin, configurable Virtual Appliance
 - “Just enough Operating Environment”
 - Experiment Software from Network file system
- Implemented solution based on
 - rPath tools (Conary, ...) for the Appliance
 - In-house solution for software distribution (CernVM-FS)
 - r/o, aggressive caching
 - Based on concept prototyped for CDF (GROW-FS)

2012: baseline project in PH-SFT

- By that time
 - CernVM v2, SL5 based, Stable and used by 3 LHC experiments
 - CernVM-FS: spin-off, independently distributed, widely deployed on WLCG sites
 - A success story
- But also
 - Copilot: framework to exploit distributed resources, enabling volunteer clouds
 - Used by LHC@Home 2.0, Test4Theory
 - Software Environment Preservation activities
 - Generic framework; NA61 example

2013: bootloader technology

- Basic idea: off-load to CernVM-FS also the OS
 - Extreme size optimization
 - Image = Kernel + CernVM-FS client: ~15 MB
 - OS downloaded on Demand: ~80 MB
- Jan 2014: CernVM v3, SL6 compatible, based on bootloader technology
 - rPath free
 - rPath closed down Dec 2012
- “Side-effects”
 - Yum/RPM package management
 - LHC requirement
 - Can stream-in any OS flavor
 - Potential for Software Environment Preservation

CernVM today

- CernVM-FS
 - Critical WLCG service
 - Increasing number of non-LHC repositories
- CernVM-Appliance
 - Production and volunteer cloud platform
 - >10000 VM started per month
 - Demonstrated platform for “data” preservation
 - [OpenData](#) pilot project enabling technology
- CernVM-Online: contextualization portal
 - Create, manage, share, archive profiles
 - Allows to define clusters of VMs, with roles
- Copilot
 - Legacy / Auto-pilot mode

CernVM team today

- J Blomer, staff
- P Buncic, staff (*)
- I Charalampidis, fellow (**)
- G Ganis, staff
- R Meusel, fellow
- J Molina, tech. student

(*) honorary member, advisor (5%)

(**) hosted; Citizen Cyberlab EU fellow (10%)

Development guidelines

- Running production services
 - Requires stability, consolidation
 - But needs continuous monitoring of technology trends
- The computing environment is evolving
 - Containers, clouds enabling elastic usage, opportunistic resources, ...
- Need to follow all this, with HEP hat

Goals of the workshop

- Present status and current plans DAY 1, AM
- Get feedback from the users community DAY 1, PM
 - Experience, limitations encountered
 - Requirements or wishes
- Get an overview of technology trends from (some of) the main actors in the field DAY 2, AM
- Have an open discussion about the directions to be followed in the future DAY 2, PM

Practical information

- Presentation slides
 - Speakers registered as CERN users should have rights to add material to their slot
 - The others – or in case of problems – please send the slides to us (1)
- Vydio access
 - Details on the Indico page
 - PIN not required
 - Contact us (1) in case of problems

(1) Gerardo.Ganis@cern.ch or Jakob.Blomer@cern.ch

Practical information (2)

- Breaks
 - Coffee & Tea will be served in the room behind the auditorium
 - There is also a cafeteria in this floor where you can buy additional beverages and/or snacks
- Lunch
 - Closest restaurant is R2 (5'-10' walking)
- Thursday evening
 - Open table at R1 with CernVM team
 - From ~18h on (30' after ending afternoon session)



Enjoy the workshop!